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Sequence Listing was accepted.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866)
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Reviewer: markspencer

Timestamp: [year=2008; month=11; day=24; hr=9; min=50; sec=12; ms=584;]

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Application No: 10650591 Version No: 1.0

Input Set:**Output Set:**

Started: 2008-10-31 15:32:08.643
Finished: 2008-10-31 15:32:11.651
Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 8 ms
Total Warnings: 44
Total Errors: 4
No. of SeqIDs Defined: 45
Actual SeqID Count: 45

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (1)
W 213	Artificial or Unknown found in <213> in SEQ ID (2)
W 213	Artificial or Unknown found in <213> in SEQ ID (3)
W 213	Artificial or Unknown found in <213> in SEQ ID (4)
W 213	Artificial or Unknown found in <213> in SEQ ID (5)
W 213	Artificial or Unknown found in <213> in SEQ ID (6)
W 213	Artificial or Unknown found in <213> in SEQ ID (7)
W 213	Artificial or Unknown found in <213> in SEQ ID (8)
W 213	Artificial or Unknown found in <213> in SEQ ID (9)
E 257	Invalid sequence data feature in <221> in SEQ ID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
W 402	Undefined organism found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (12)
W 213	Artificial or Unknown found in <213> in SEQ ID (13)
W 213	Artificial or Unknown found in <213> in SEQ ID (14)
E 257	Invalid sequence data feature in <221> in SEQ ID (14)
E 257	Invalid sequence data feature in <221> in SEQ ID (14)
W 213	Artificial or Unknown found in <213> in SEQ ID (15)
W 213	Artificial or Unknown found in <213> in SEQ ID (16)
E 257	Invalid sequence data feature in <221> in SEQ ID (16)

Input Set:

Output Set:

Started: 2008-10-31 15:32:08.643
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Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 8 ms
Total Warnings: 44
Total Errors: 4
No. of SeqIDs Defined: 45
Actual SeqID Count: 45

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (17)
W 213	Artificial or Unknown found in <213> in SEQ ID (19)
W 213	Artificial or Unknown found in <213> in SEQ ID (20)
W 213	Artificial or Unknown found in <213> in SEQ ID (21)
W 213	Artificial or Unknown found in <213> in SEQ ID (22)
	This error has occurred more than 20 times, will not be displayed

SEQUENCE LISTING

<110> AFEYAN, NOUBAR B.
 LEE, FRANK D.
 WONG, GORDON G.
 DAS GUPTA, RUCHIRA
 BAYNES, BRIAN

<120> ADZYMES AND USES THEREOF

<130> COTH-P02-001

<140> 10650591
 <141> 2008-10-31

<150> 60/406,517
 <151> 2002-08-27

<150> 60/423,754
 <151> 2002-11-05

<150> 60/430,001
 <151> 2002-11-27

<160> 45

<170> PatentIn version 3.5

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 <212> PRT
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<220>
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 peptide

<400> 1
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 1 5 10

<210> 2
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 2
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 1 5 10

<210> 3
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 3
Asp Tyr Lys Asp Asp Asp Lys
1 5

<210> 4
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 4
Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
1 5

<210> 5
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 5
Glu Asp Gln Val Asp Pro Arg Leu Ile Asp Gly Lys
1 5 10

<210> 6
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 6
Tyr Thr Asp Ile Glu Met Asn Arg Leu Gly Lys
1 5 10

<210> 7

<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 7
Ser Ser Ser Ser Gly
1 5

<210> 8
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 8
Ser Gly Gly Gly Gly
1 5

<210> 9
<211> 5
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<220>
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<222> (3)..(4)
<223> Any amino acid

<400> 9
His Glu Xaa Xaa His
1 5

<210> 10
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
6x His tag

<400> 10

His His His His His His
1 5

<210> 11
<211> 26
<212> PRT
<213> Human immunodeficiency virus 1

<400> 11
Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys Lys Arg
1 5 10 15

Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser
20 25

<210> 12
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 12
Cys Met His Ile Glu Ser Leu Asp Ser Tyr Thr Cys
1 5 10

<210> 13
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 13
Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys
1 5 10

<210> 14
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<220>

<221> MOD_RES
 <222> (1)..(1)
 <223> A unique residue, such as cysteine or lysine, that facilitates chemical conjugation of the internalizing peptide to a targeting protein conjugate

<220>
 <221> MOD_RES
 <222> (2)..(3)
 <223> Any residues selected to modulate the affinity of the internalizing peptide for different membranes

<220>
 <223> see specification as filed for detailed description of substitutions and preferred embodiments

<400> 14
 Xaa Xaa Xaa Glu Ala Ala Leu Ala Glu Ala Leu Ala Glu Ala Leu Ala
 1 5 10 15
 Glu Ala Leu Ala Glu Ala Leu Ala Glu Ala Leu Glu Ala Leu Ala Ala
 20 25 30

<210> 15
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 15
 Ala Leu Trp His Trp Trp His
 1 5

<210> 16
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (1)..(1)
 <223> Thr or Ser

<400> 16
 Xaa Trp Leu His Trp Trp Ala
 1 5

<210> 17
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 17
Gly Gly Gly Gly Ser
1 5

<210> 18
<211> 6
<212> PRT
<213> Influenza A virus

<400> 18
Asp Val Pro Asp Tyr Ala
1 5

<210> 19
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 19
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

<210> 20
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 20
Gly Gly Val Arg
1

<210> 21
<211> 639
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 21

Met	Glu	Thr	Asp	Thr	Leu	Leu	Leu	Trp	Val	Leu	Leu	Leu	Trp	Val	Pro
1				5				10					15		

Gly	Ser	Thr	Gly	Asp	Ala	Ala	Gln	Pro	Ala	Arg	Arg	Ala	Val	Arg	Ser
			20				25						30		

Leu	Met	Thr	Ala	Thr	Ser	Glu	Tyr	Gln	Thr	Phe	Phe	Asn	Pro	Arg	Thr
		35					40					45			

Phe	Gly	Ser	Gly	Glu	Ala	Asp	Cys	Gly	Leu	Arg	Pro	Leu	Phe	Glu	Lys
	50					55				60					

Lys	Ser	Leu	Glu	Asp	Lys	Thr	Glu	Arg	Glu	Leu	Leu	Glu	Ser	Tyr	Ile
65					70					75					80

Asp	Gly	Arg	Ile	Val	Glu	Gly	Ser	Asp	Ala	Glu	Ile	Gly	Met	Ser	Pro
			85						90					95	

Trp	Gln	Val	Met	Leu	Phe	Arg	Lys	Ser	Pro	Gln	Glu	Leu	Leu	Cys	Gly
		100						105						110	

Ala	Ser	Leu	Ile	Ser	Asp	Arg	Trp	Val	Leu	Thr	Ala	Ala	His	Cys	Leu
		115					120					125			

Leu	Tyr	Pro	Pro	Trp	Asp	Lys	Asn	Phe	Thr	Glu	Asn	Asp	Leu	Leu	Val
	130					135					140				

Arg	Ile	Gly	Lys	His	Ser	Arg	Thr	Arg	Tyr	Glu	Arg	Asn	Ile	Glu	Lys
145					150					155					160

Ile	Ser	Met	Leu	Glu	Lys	Ile	Tyr	Ile	His	Pro	Arg	Tyr	Asn	Trp	Arg
			165						170					175	

Glu	Asn	Leu	Asp	Arg	Asp	Ile	Ala	Leu	Met	Lys	Leu	Lys	Lys	Pro	Val
		180						185					190		

Ala	Phe	Ser	Asp	Tyr	Ile	His	Pro	Val	Cys	Leu	Pro	Asp	Arg	Glu	Thr
		195					200						205		

Ala Ala Ser Leu Leu Gln Ala Gly Tyr Lys Gly Arg Val Thr Gly Trp
210 215 220

Gly Asn Leu Lys Glu Thr Trp Thr Ala Asn Val Gly Lys Gly Gln Pro
225 230 235 240

Ser Val Leu Gln Val Val Asn Leu Pro Ile Val Glu Arg Pro Val Cys
245 250 255

Lys Asp Ser Thr Arg Ile Arg Ile Thr Asp Asn Met Phe Cys Ala Gly
260 265 270

Tyr Lys Pro Asp Glu Gly Lys Arg Gly Asp Ala Cys Glu Gly Asp Ser
275 280 285

Gly Gly Pro Phe Val Met Lys Ser Pro Phe Asn Asn Arg Trp Tyr Gln
290 295 300

Met Gly Ile Val Ser Trp Gly Glu Gly Cys Asp Arg Asp Gly Lys Tyr
305 310 315 320

Gly Phe Tyr Thr His Val Phe Arg Leu Lys Lys Trp Ile Gln Lys Val
325 330 335

Ile Asp Gln Phe Gly Glu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
340 345 350

Gly Gly Gly Gly Ser Met Glu Val Gln Leu Leu Glu Ser Gly Gly Asp
355 360 365

Leu Val Lys Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly
370 375 380

Phe Thr Phe Ser Thr Tyr Gly Met Ser Trp Val Arg Gln Thr Pro Asp
385 390 395 400

Lys Arg Leu Glu Trp Val Ala Thr Ile Ser Asn Gly Gly Gly Tyr Thr
405 410 415

Tyr Tyr Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn
420 425 430

Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Lys Ser Glu Asp
435 440 445

Thr Ala Met Tyr Tyr Cys Ala Arg Arg Glu Arg Tyr Asp Glu Asn Gly
450 455 460

Phe Ala Tyr Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ala Gly Gly
465 470 475 480

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Val
485 490 495

Met Ser Gln Ser Pro Ser Ser Leu Ala Val Ser Val Gly Glu Lys Ile
500 505 510

Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Phe Asn Ser Gly Lys Gln
515 520 525

Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys
530 535 540

Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val Pro Asp Arg
545 550 555 560

Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser
565 570 575

Val Lys Ala Glu Asp Leu Ala Val Tyr Tyr Cys Gln Asn Asp Tyr Ser
580 585 590

His Pro Leu Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala
595 600 605

Asp Ala Ala Pro Thr Ala Arg Gly Gly Pro Glu Gln Lys Leu Ile Ser
610 615 620

Glu Glu Asp Leu Asn Ser Ala Val Asp His His His His His
625 630 635

<210> 22
<211> 639
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 22

Met	Glu	Thr	Asp	Thr	Leu	Leu	Leu	Trp	Val	Leu	Leu	Leu	Trp	Val	Pro
1				5				10					15		

Gly	Ser	Thr	Gly	Asp	Ala	Ala	Gln	Pro	Ala	Arg	Arg	Ala	Val	Arg	Ser
			20				25						30		

Leu	Met	Glu	Val	Gln	Leu	Leu	Glu	Ser	Gly	Gly	Asp	Leu	Val	Lys	Pro
		35					40					45			

Gly	Gly	Ser	Leu	Lys	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser
	50					55					60				

Thr	Tyr	Gly	Met	Ser	Trp	Val	Arg	Gln	Thr	Pro	Asp	Lys	Arg	Leu	Glu
65					70					75					80

Trp	Val	Ala	Thr	Ile	Ser	Asn	Gly	Gly	Gly	Tyr	Thr	Tyr	Tyr	Pro	Asp
				85					90					95	

Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ala	Lys	Asn	Thr
			100						105				110		

Leu	Tyr	Leu	Gln	Met	Ser	Ser	Leu	Lys	Ser	Glu	Asp	Thr	Ala	Met	Tyr
		115					120					125			

Tyr	Cys	Ala	Arg	Arg	Glu	Arg	Tyr	Asp	Glu	Asn	Gly	Phe	Ala	Tyr	Trp
	130					135					140				

Gly	Arg	Gly	Thr	Leu	Val	Thr	Val	Ser	Ala	Gly	Gly	Gly	Gly	Ser	Gly
145					150					155					160

Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Asp	Ile	Val	Met	Ser	Gln	Ser
				165					170					175	

Pro	Ser	Ser	Leu	Ala	Val	Ser	Val	Gly	Glu	Lys	Ile	Thr	Met	Ser	Cys
			180					185					190		

Lys	Ser	Ser	Gln	Ser	Leu	Phe	Asn	Ser	Gly	Lys	Gln	Lys	Asn	Tyr	Leu
			195				200					205			

Thr	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Lys	Leu	Leu	Ile	Tyr			
	210					215					220							
Trp	Ala	Ser	Thr	Arg	Glu	Ser	Gly	Val	Pro	Asp	Arg	Phe	Thr	Gly	Ser			
225					230					235					240			
Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Val	Lys	Ala	Glu			
				245					250					255				
Asp	Leu	Ala	Val	Tyr	Tyr	Cys	Gln	Asn	Asp	Tyr	Ser	His	Pro	Leu	Thr			
			260					265					270					
Phe	Gly	Gly	Gly	Thr	Lys	Leu	Glu	Ile	Lys	Arg	Ala	Asp	Ala	Ala	Pro			
	275						280					285						
Thr	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser			
	290					295					300							
Met	Thr	Ala	Thr	Ser	Glu	Tyr	Gln	Thr	Phe	Phe	Asn	Pro	Arg	Thr	Phe			
305					310					315					320			
Gly	Ser	Gly	Glu	Ala	Asp	Cys	Gly	Leu	Arg	Pro	Leu	Phe	Glu	Lys	Lys			
				325					330					335				
Ser	Leu	Glu	Asp	Lys	Thr	Glu	Arg	Glu	Leu	Leu	Glu	Ser	Tyr	Ile	Asp			
			340					345					350					
Gly	Arg	Ile	Val	Glu	Gly	Ser	Asp	Ala	Glu	Ile	Gly	Met	Ser	Pro	Trp			
	355						360					365						
Gln	Val	Met	Leu	Phe	Arg	Lys	Ser	Pro	Gln	Glu	Leu	Leu	Cys	Gly	Ala			
	370					375					380							
Ser	Leu	Ile	Ser	Asp	Arg	Trp	Val	Leu	Thr	Ala	Ala	His	Cys	Leu	Leu			
385					390					395					400			
Tyr	Pro	Pro	Trp	Asp	Lys	Asn	Phe	Thr	Glu	Asn	Asp	Leu	Leu	Val	Arg			
				405					410					415				
Ile	Gly	Lys	His	Ser	Arg	Thr	Arg	Tyr	Glu	Arg	Asn	Ile	Glu	Lys	Ile			
			420					425					430					

Ser Met Leu Glu Lys Ile Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu
435 440 445

Asn Leu Asp Arg Asp Ile Ala Leu Met Lys Leu Lys Lys Pro Val Ala
450 455 460

Phe Ser Asp Tyr Ile His Pro Val Cys Leu Pro Asp Arg Glu Thr Ala
465 470 475 480

Ala Ser Leu Leu Gln Ala Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly
485 490 495

Asn Leu Lys Glu Thr Trp Thr Ala Asn Val Gly Lys Gly Gln Pro Ser
500 505 510

Val Leu Gln Val Val Asn Leu Pro Ile Val Glu Arg Pro Val Cys Lys
515 520 525

Asp Ser Thr Arg Ile Arg Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr
530 535 540

Lys Pro Asp Glu Gly Lys Arg Gly Asp Ala Cys Glu Gly Asp Ser Gly
545 550 555 560

Gly Pro Phe Val Met Lys Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met
565 570 575

Gly Ile Val Ser Trp Gly Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly
580 585 590

Phe Tyr Thr His Val Phe Arg Leu Lys Lys Trp Ile Gln Lys Val Ile
595 600 605

Asp Gln Phe Gly Glu Ala Arg Gly Gly Pro Glu Gln Lys Leu Ile Ser
610 615 620

Glu Glu Asp Leu Asn Ser Ala Val Asp His His His His His His
625 630 635

<210> 23

<211> 30

<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 23
cccggaagct taatggaggt gcagctgttg 30

<210> 24
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 24
acgcccctcg agcagttggt gcagcatcag c 31

<210> 25
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 25
cccggaagct taatgaccgc caccagtgag tac 33

<210> 26
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 26
ggcccctcga gcctctccaa actgatcaat g 31

<210> 27
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Ar